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The Citizens' Bulletin of the Connecticut Department of Environmental Protection

April/1989

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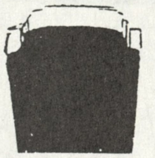

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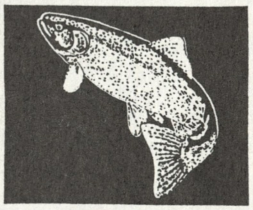

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Cover by Michael D. Klein

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Editor's Note

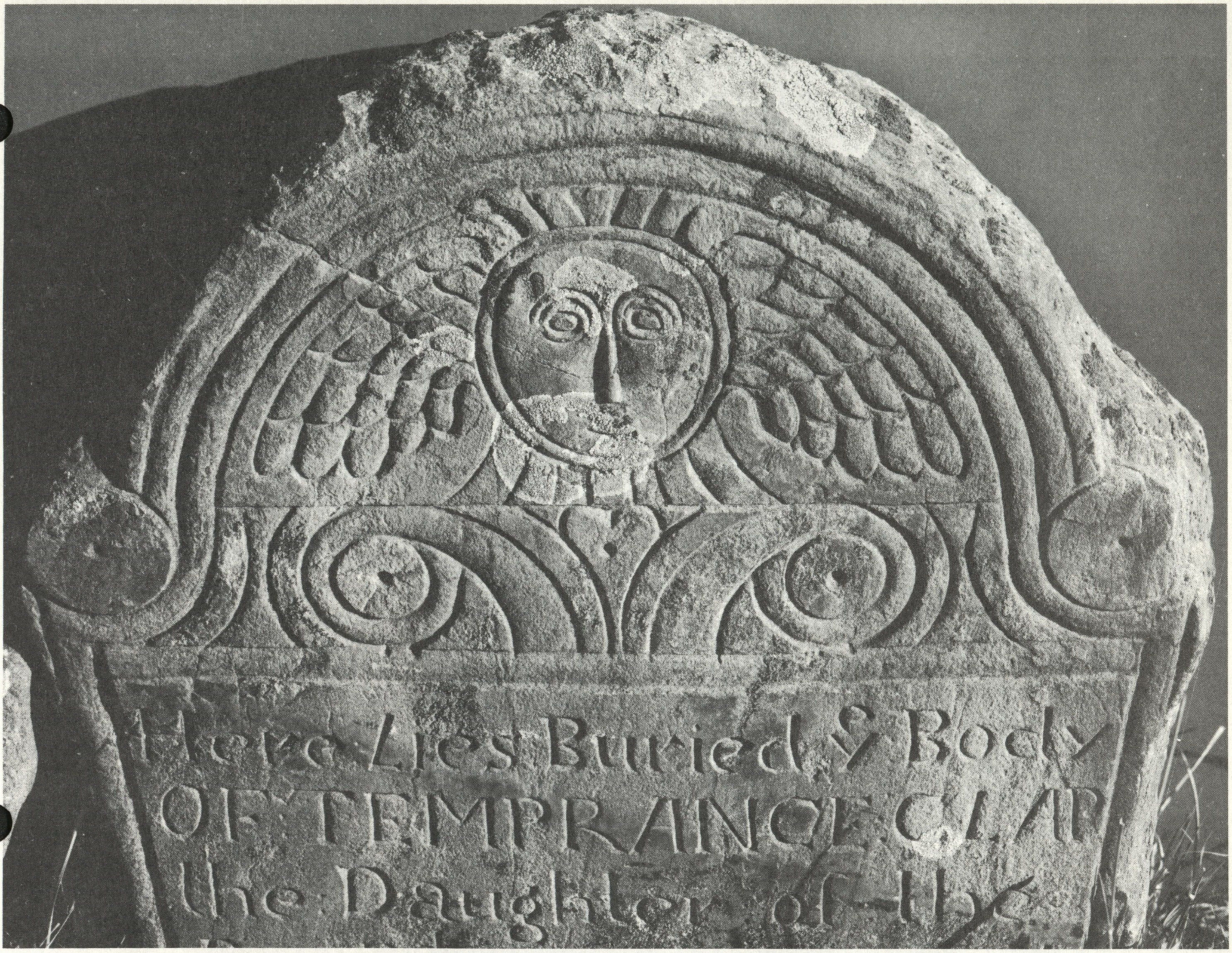
Recently we've been getting a lot of positive response about our interns. Most readers have noticed, I'm sure, that just about every issue of *Connecticut Environment* has at least one article written by an intern, sometimes more. This may be the time for them to stand up and take a bow.

The interns are all college kids and, except for one paid position during the summer (the pay here, needless to say, may be generously described as "nominal"), they work here for college credit. Many of the kids have come from UConn, both through the State Museum of Natural History and the Department of English, but we've also had kids from most of the other Connecticut colleges. The kids are great. They are careful, hardworking, they understand deadlines, they are willing to go the extra mile to get a good story, and they approach the subjects with open, receptive minds.

From the point of view of the ruthless and utterly self-serving editor, the interns are a means to the glorious end of filling up blank pages. More than once, they have carried the day at the offices of this vast, metropolitan environmental magazine. There are, however, other longer range benefits. What we have here is a bunch of kids who are already deeply involved in understanding this world, who are already learning how to use their talents to fulfill a wider responsibilty, beyond just their own personal desires. It's nice to be part of that right now, but the long-term implications are even nicer to contemplate.

So, on behalf of those of us involved in putting out this magazine, as well as of all of the residents of Connecticut, we'd like to express a brief word of appreciation to the interns. Nice job, kids. As they say in some circles, you're doing it righteous.

R.P.



The grave of Temprance Clap, d. 1732, in Windham. This close-up of the stone shows the art work, lichens, and grass. (*Photos: Daniel Farber*)

Islands in the Sun

The Natural History of Cemeteries

by

James Slater

TO SOME, CEMETERIES are places of superstition and of unnatural things. Thus to be avoided lest we become too aware of our own ephemeral nature. To many, cemeteries are places where one goes to pay respect to deceased relatives. To others, they are sources of genealogical information. In the cemetery, it is possible to study the art forms that have evolved in North America since the early New England craftsmen began to carve their astonishing winged skulls and soul angels in the late 1600s.

It is only recently, however, that we have come to recognize that throughout the United States the old cemeteries are biological refuges of great importance. They are also usually places of peace and beauty amid the urban sprawls of our megalopoli and the vast corn and wheat fields of the midwest.

One of the most striking uses of old cemeteries is as a preserve of endangered species, a use which has been documented in Illinois. In its northern and central heartland, the state of Illinois was a sweeping country of rich prairie, interspersed with groves of oaks, and with a diverse woodland community along the river valleys. The early settlers in the area preserved

Burying ground in Marlboro. A burying ground can provide a wealth of ecological diversity, including lichens on gravestones and stone walls and native flowers and grasses. Notice the flowers in this burying ground. Minimal mowing and maintenance is sometimes desirable because brush is kept down but native flowers are allowed to reach blooming stages. The author has seen sunflowers, goldenrod, black-eyed susans, and lupines growing in minimally-maintained burying grounds in Connecticut.

the oak groves and bottom lands as wood sources, because they were relatively difficult to bring under cultivation. By contrast, the magnificent prairies disappeared almost completely under the plow. Today only tiny remnants of this wonderful plant and animal community remain, along abandoned railroad rights-of-way and on infertile limestone outcrops. However, recently it was realized that there were two additional sources of rare prairie vegetation: the country school yards and the old rural cemeteries. Many of these had been established before the land was broken and farmed. Sadly, the old school plots are now almost gone, but the old cemeteries remain. Illinois has developed a grading system for these cemeteries based upon the quality of the remaining prairie vegetation. There is a carefully controlled burning program to keep out brush growth and to approximate the conditions of the original prairie which was maintained by sporadic natural fires. This has been of great benefit to the bird, mammal, reptile, and insect life that is dependent upon these unique habitats.

IN NEW ENGLAND, we are only now becoming aware of the valuable ecological resource that lies all about us -- our ancient burying grounds. Many of these have been present since the early settlement of the countryside and have remained as ecological islands through the pastoral, agricultural, and reforesting periods of New England history.

The early burying grounds were only minimally maintained. It was a common practice to keep down brush by grazing cattle and sheep among the gravestones. (This is still done in some East Anglia graveyards.) This practice had some disadvantages; the cattle were not only detriments to the Sunday walks that the inhabitants were so fond of, but also brought about destruction of monuments. Thus, in Preston, the Long Society Burying Ground donors stipulated that only sheep and geese were to be allowed to graze in the burying ground.

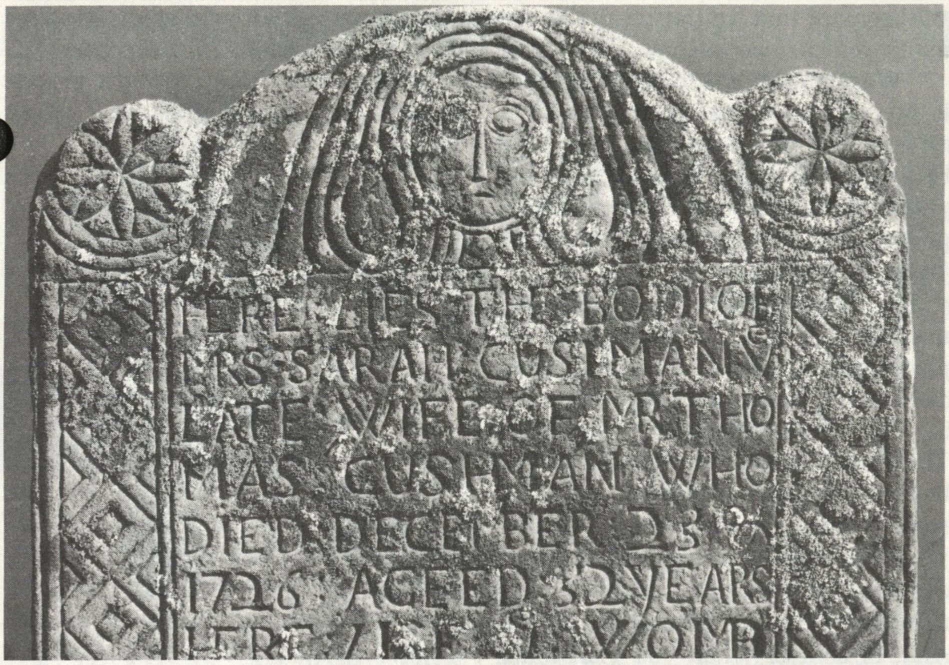
Later the practice of grazing domestic animals was largely abandoned. In rural areas, many of the old cemeteries were themselves buried under brush and young trees.

In the Victorian Period, a phenomenon called the "rural cemetery movement" occurred in some of the more wealthy cities. This movement presented the cemetery as a place of beauty where descendants could stroll on winding paths, around ponds and lakes. Thousands of trees, many exotic and rare species, were planted in cemeteries in this period. Mt. Auburn Cemetery near Boston is a prime example of this rural cemetery movement.

VICTORIAN EXUBERANCE only marginally affected the smaller Colonial graveyards of the rural communities. Today these are often in a condition similar to that in which they were when they were young and the marvelous stones were in pristine condition.

To the ecologist, they present a wonderful opportunity to study relatively stable communities. To the conservationist and preservationist, they are opportunities to preserve and study a unique habitat.

In southern New England, the old graveyards were usually located in interesting ecological settings in the first place. The Colonists chose the sites to avoid rock ledges or boulder-strewn fields and to avoid farm land. Therefore, most of the graveyards were placed on gravelly, relatively dry lo-



The grave of Mrs. Sarah Cushman, d. 1726, in Lebanon. This photo shows the depth and diversity of lichen growth.

cations, such as overdrained moraines and glacial ridges. In such situations, succession is relatively slow and the assemblage of plants and animals sometimes appears as a prairie remnant or a "barren."

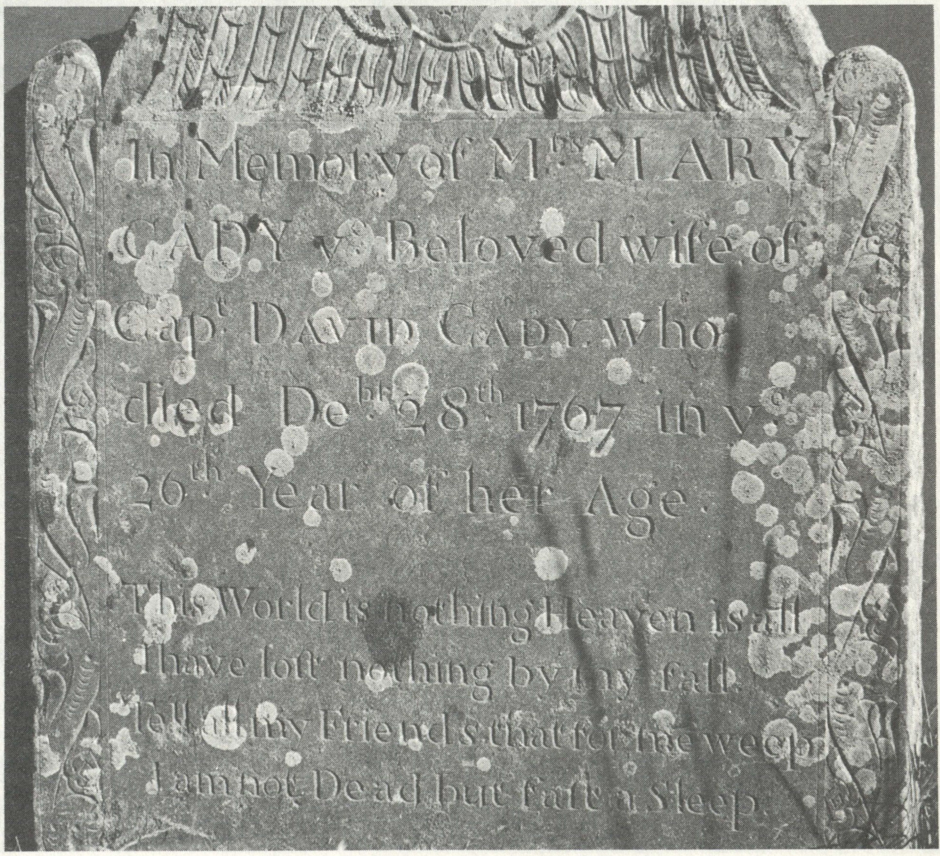
THERE HAS NOT YET BEEN a careful study of the ecology of these wonderful old burying grounds, and there is an opportunity for both some pioneering survey work and some sophisticated quantitative analyses.

Consider what we have around us. In a countryside that has become largely suburban and secondary woodland, the old graveyards are truly ecological islands with many unusual plants and animals, such as the pink ladyslippers in the Old Cove cemetery in East Haddam and the wild lupines in Oneco. But the importance is much more subtle than this.

It is almost impossible to enter a Colonial cemetery in southern New England without finding at least one pair of mockingbirds. For a mocking bird, there is probably no more delicious combination of open space, numerous perching places, and brushy or woody edge habitat for nesting. It should also be prime nesting territory for bluebirds and tree swallows if a proper nest box program were to be established for cemeteries.

The lichen community also is remarkable. Not only do the various kinds of stone used for the grave markers each attract different lichens, but the directions in which the stones face, the degree of sunlight, and the amount of moisture affect what is and what is not present. Although many gravestone preservationists deplore the inroads of lichens, lichens tell us a great deal about the history of the graveyard. In some Colonial yards that are today meticulously mowed, such as the old Trumbull cemetery in Lebanon, the dark iron-like lichens on the north-facing schist stones tell immediately that this burying ground must itself have been buried under shrub growth for many years. This is in contrast to the almost lichenless condition of the slate stones at Woodstock Hill beside its spired New England church. Constant care must have been given to that graveyard through the centuries.

IN ENGLAND, I was both surprised and amused to find that there was tension between the gravestone preservationists and the lichen lovers. The latter maintain that some of the most rare and local species of


In Memory of Mrs MARY
CADY ye Beloved wife of
Capt DAVID CADY who
died Decbr 28th 1767 in ye
26th Year of her Age.
This World is nothing Heaven is all
I have lost nothing by my fall
Tell all my Friends that for me weep
I am not Dead but fast a Sleep.

Gravestone of Mary Cady, d. 1767, in So. Killingly. This stone shows dark and light lichens.

lichens were found only on the old gravestones and that to remove them was a sacrilege. Is the same thing true in New England? We do not know. Certainly with our wealth of stone walls, it would not seem to be true of the schist and granite loving species. But what about lichens on slate, marble, and sandstone? And what about possible differences on Windsor and Portland sandstone?

Can we reconstruct the past of these burying grounds by a study of the existing flora and fauna? Which have been grazed for long periods of time? Which have been overgrown with brush and which have not? How sensitive are the plants and animals and the stones to pollution of the air and soil? What grows on what types of substrates?

Ecologists always need sites that remain relatively undisturbed for long periods of time. There are none better than these old burial sites.

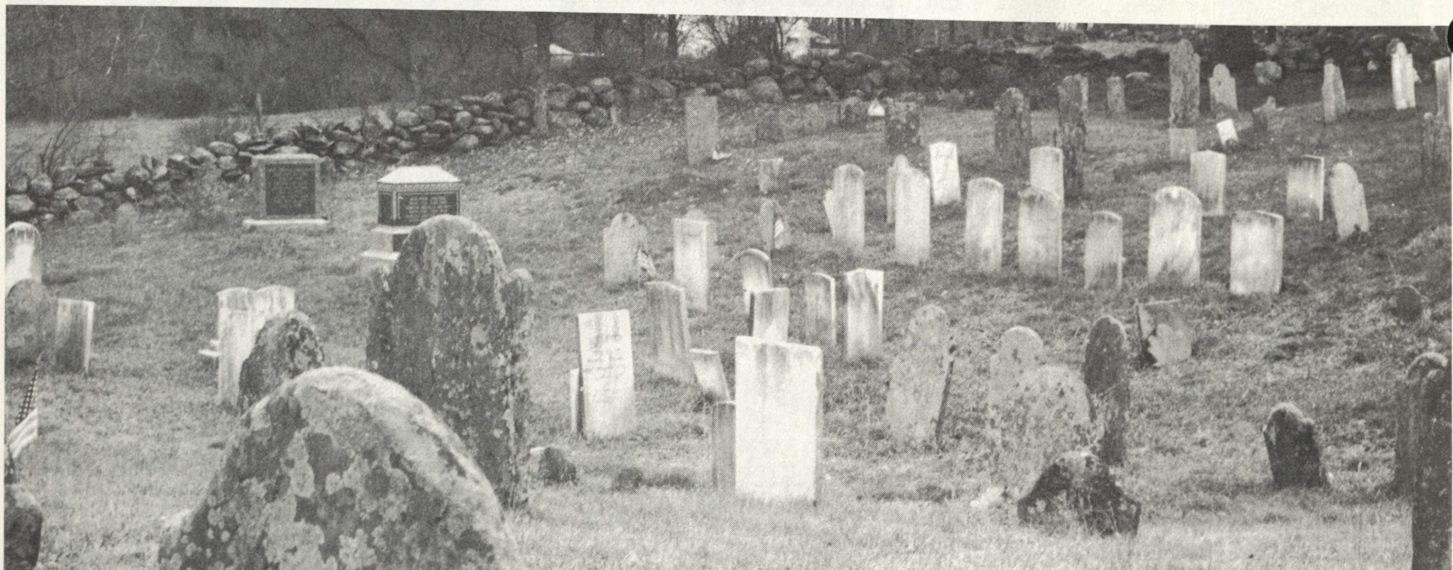
From a preservationist's viewpoint, we have in these places isolated patches that have been open now for 200 or more years and which, we hope, will remain in a similar condition for many generations to come.

We need surveys to discover what is present, how the fauna and flora differ from place to place, and how best to "manage" these burying grounds for the benefit of the wildlife, preservation of the stones, and the enjoyment of the people.

A Boston archaeologist once remarked that the old graveyards are places where one can do sophisticated field work under aesthetically pleasing and physically easy conditions. These are places to be enjoyed; but to have maximum enjoyment, we must have maximum knowledge. In this way, we will be preserving and understanding a unique ecological phenomenon of major interest to us all. **And, of course, when you visit some of our old graveyards, remember that** they are hallowed places, where we must walk quietly and with respect.

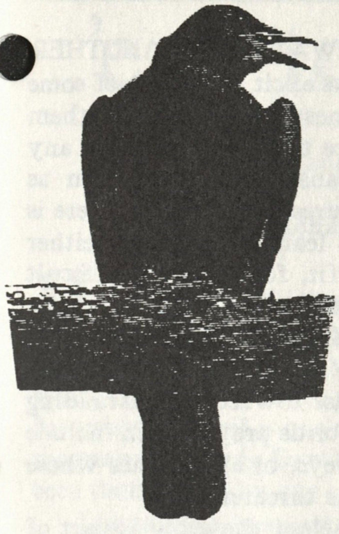
(*The author is professor emeritus of ecology and evolutionary biology at The University of Connecticut. He is the author of* The Colonial Burying Grounds of Eastern Connecticut, *the only book about Connecticut's gravestones and the artists who made them.*)

This article was contributed by The Connecticut State Museum of Natural History at The University of Connecticut in Storrs, which exhibits mounted birds of Connecticut, the largest mounted white shark on display in the eastern United States, "Videoplace" interactive video, Indian artifacts, and offers programs for teachers, children, and adults. For further information, please contact the Museum, UConn, Box U-23, Storrs, CT 06269-3023; phone (203) 486-4460. ■

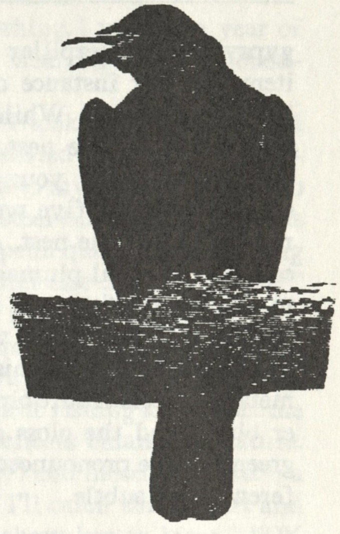


Because the Abington burying ground, pictured here, was covered with grasses eight feet high for many years, the lichens grew abundantly on the stones which were protected from sunlight and desiccation.

Nature Notes



On Doing What's Necessary



by
Penni Sharp

THE AMERICAN CROW (*Corvus brachyrynchos*) is everywhere. We see it at all seasons, and especially from November through April when leaves are gone and all birds are more readily observed. You can find crows along the roadways or flying overhead. Everywhere.

A bird of remarkable adaptive abilities and intelligence, the crow has learned to coexist with man, perhaps more successfully than any other animal. The sworn enemy of farmers whose grain the crow devours, crows have managed to stay one step ahead of their enemies. Which is fortunate, because crows have few friends. They do have a number of questionable habits that have helped earn them their bad reputations. Aside from their fondness for farm crops, they are also nest-robbers, taking eggs and young of other birds. There is a kind of cheekiness in the crow's bold approach that some find offensive. On the other hand, the crow performs a valuable role as a scavenger. Crows will consume just about anything. The crows' love for corn is well-known, but they also eat harmful insects such as cutworms and grasshoppers. They also eat roadside scraps, and thus help maintain a clean, healthy environment.

THE COURTSHIP OF CROWS begins in late March. This consists of display, dance, and song, although some might feel that the word "song" for the sounds emitted by a crow may be too kind. The song, usually given by the male from a perch, is a curious rattle or rapid succession of sharp notes. When approaching the female, a courting male will bow, spread wings and tail, and puff out his feathers. After several bows, he will sing the staccato song. This performance is usually repeated several times. During the breeding season, fights between rival males are not uncommon. When two crows are observed trying to rise above one another in the air and making noisy attacks upon each other, it is probably safe to assume that one has intruded upon the other's territory and a fight is in progress.

During courtship, the female may seem indifferent to her suitor. However, once the bond is established, male and female are seen often caressing each other with their beaks.

CROWS BUILD THEIR NESTS in the branches of tall trees. When given a choice, they seem to prefer evergreens to deciduous trees. From the ground, crows' nests appear to be large, loosely-constructed, rather crude affairs. In reality, they are well-built structures, with the nesting bowl soft and compact. The outer parts of the nest are fashioned from branches and twigs, whereas the interior is constructed with small twigs interwoven with strands of shredded bark fiber. Other materials used for the lining of nests include grass, feathers, rags, wool, fur, hair, and moss. Crows like shiny objects, and strange things have been found in their nests, even silver coins.

As in all other aspects of its life, the crow is very adaptable in the choice of a nesting site. Where trees are lacking, crows will nest upon the ground. There are even reports of crows' nests on chimney tops.

Both male and female share in the building of the nest as well as in the incubation of the eggs. Eggs typically number from four to six, although as many as 10 in a single nest have been noted. The eggs are quite handsome and variable in appearance. They range in color from pale bluish-green to olive-green. They are marked with irregular splotches of different hues of browns and grays.

The incubation period lasts for 18 days and, in Connecticut, crows are likely to raise two broods a season. Both male and female share duties in caring for the young. Young crows are naked and helpless upon hatching. They are a pinkish color with a light scattering of grayish brown down on wings, back, and head. During the first few weeks, the parents make continual trips to the nest, bringing an assortment of food with a heavy emphasis on insects in adult or larval form. The gypsy moth caterpillar is a popular item, another instance of the crow's beneficial aspect. While the young crows wait in the nest, the feathers develop and the young birds gain strength. Within five weeks, they are ready to leave the nest. A crow in its complete juvenal plumage is difficult to distinguish from an adult. It is a dark grayish-black, and wings and tail are black with a greenish and violet metallic sheen. Adult birds are a deeper black, and the gloss of violet and green is more pronounced, but the differences are subtle.

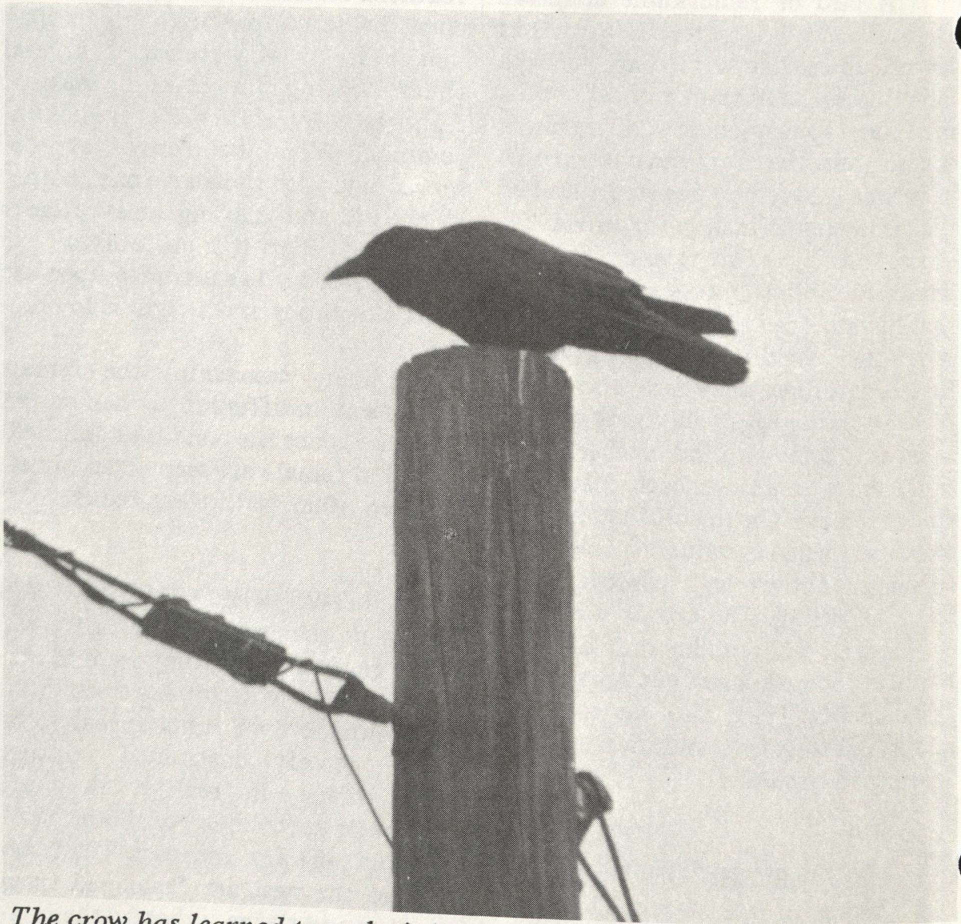
CROWS HAVE A VARIETY of calls – in fact, some might say they have their own language. In addition to the courtship song, there is the common "caw-caw" and its many modifications and then a variety of gutteral sounds. Crows are great imitators, and many who have kept captive crows talk of their ability to imitate certain human words. They can certainly mimic laughter. Charles W. Townsend, in his article "Voice and Courtship of the Crow" (*Bulletin of the Essex County Ornithological Club*, Volume 5) gave the following account: "The conversational notes of a small group or family of crows are always entertaining, and the observer is impressed with the extensiveness of their vocabulary and with the variations in their feelings. At times the notes are low and confidential, pleasant, and almost melodious, if I may use that word here; again they are raucous and scolding, bursting at times into a veritable torrent of abuse. In the same way, in human conversations, one may, even without understanding the words, be able to interpret the meanings and motives involved."

MAN HAS A LONG-STANDING relationship with the crow. There are many literary references to crows, and they figure as symbols in art. Two of Aesop's fables deal with crows. *The Crow and the Pitcher* tells of a thirsty crow who comes upon a pitcher with only a bit of water at the bottom, out of his reach. The resourceful crow gathered pebbles and dropped them one by one into the pitcher until the water gradually reached the top and he was able to drink. Those who know crows may find this tale quite plausible.

In our modern language, several figures of speech involve crows. The expression "as the crow flies" is another way of saying by the most direct route. To "eat crow" is an expression used when one is forced into take back one's own words or actions, and finally "to have a crow to pick (or pluck) with someone" means to have reason to disagree with that person. Crows have been included in paintings from the early Renaissance to modern times. One of the most moving paintings involving crows has to be Vincent van Gogh's *Crows Over the Wheat Field*, painted while he was at Saint-Remy.

ONE WAY OR ANOTHER crows elicit a response of some kind from most people. Some see them as a nuisance to be eradicated by any possible means. Others see them as clever creatures about whom there is much to be learned. I suppose either view could fit, for it can be difficult to feel compassion for a bird that steals the eggs and young of other birds to satisfy its hunger. Truly unkind thoughts arise toward the marauding crow if the birds preyed upon include herons, ospreys, or any species whose population is threatened.

Nonetheless, the crow is part of the natural world and has managed successfully, despite plenty of opposition. So, even if you don't happen to like him so much, you have to give the cocky, noisy, and very intelligent fellow credit. It's a tough world out there, and the crow has demonstrated he is ready and able to do what's necessary. You have to respect that. ■



The crow has learned to make it in a tough world. That deserves respect.

You Can Lead 'em to Water

Text and Illustration
by
Michael D. Klein

WITHIN THE HUMAN BODY there is sequestered a little known chromosome which, when activated, imbues offspring with the passions for piscatorial sport. For those of us so genetically afflicted, the third Saturday in April is one of the most significant dates in the year -- Opening Day! It's not our fault, you see; it has been determined by our creator.

I have often been accused of memory lapses when it comes to birthdays, anniversaries, and the occasional business appointment; a fact compounded by never having missed the first day of the fishing season. Not unlike postal persons, nothing yet has deterred me from this appointed round.

It was with genetics in mind that I was to eventually have a child (with my wife's help and cooperation, of course). When Andy was born in 1980, my first fatherly obligation, as I saw it, was to rush from the hospital and purchase the smallest pair of hip boots and tiniest ultralight spinning outfit available. If you parents out there think me a bit odd, consider the number among you who bought your children balls, bats, and gloves before they were old enough to crawl.

Anyway, I re-entered the hospital with my purchases in tow, took the elevator to the maternity ward, and showed the outfit to the head nurse. "Now my son and I can fish together," I babbled excitedly. "How nice," she responded. As I walked toward my wife's room I heard the nurse whisper to a passing orderly, "Poor woman, a new son and a husband like THAT!"

My wife was duly unimpressed. "Don't you think we should spend our money on diapers and savings bonds for college first?" Poor woman. I guess the excitement of motherhood was making her delirious.

Pressing against the glass of the newborn observation area, I had the nurse bring my son to the window. "Look, Andy, now we can go fishin'." He cried.

As the first year passed, I fished and dreamed of the day my son would take his rightful place by my side -- knee-deep in the cool, clear waters and casting for wary trout and fiesty smallmouth bass.

When Andy was two, I took advantage of every opportunity to inject my young son with "fishing fever." I hung a mounted bass over his bed. He hung a dirty stocking from its tail. I put pictures of fish between the piles of Dr. Seuss books on his night stand. He threw them in his wastebasket (he's not usually *that* neat!).

When Andy was three, I sat him in front of the TV and forced him to watch fishing videos. He closed his eyes. I took him to some of my favorite and most secret fishing holes. He threw rocks into the water.

When he was four I did nothing. I wanted a year of not having to think about a son who might not be genetically attuned to fishing.

On Andy's fifth birthday, I took the hip boots and fishing outfit from the closet, dusted them off, and presented them with much fanfare, to my son. There was no look of excitement in his young steel-blue eyes. There was no "Oh boy, Dad, now we can spend quality time fishing together." There was only, "What else did you get me?"

On opening day, we drove the four miles from our home to a "Kids Only" fishing area that had recently been stocked with trout. On the way, I dispensed fatherly wisdom on the joys and rewards of fishing as well as the importance of preserving the delicate balance of nature. He seemed overly quiet (a rarity) and moody (not such a rarity). At last he spoke, "Dad, I'll catch three trout and then we can go home so I can show 'em to Mom." "OK son!" I anticipated a goodly amount of time would be spent at the pond.

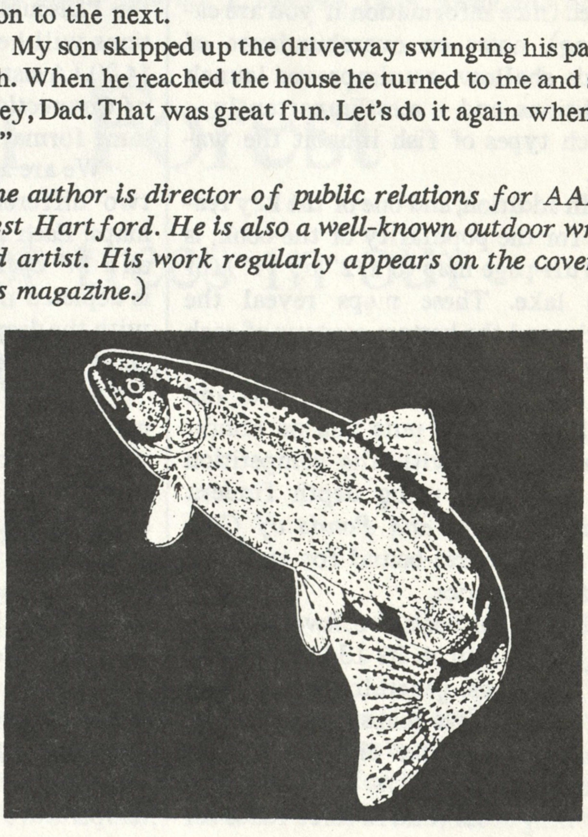
He fished. In less than four minutes he caught his first fish ever, a good sized rainbow trout. I proudly took the obligatory photo of son and fish. Within the next 30 seconds, he caught another. A minute later, the third.

One of us was very excited -- me. "OK, Dad. I got three fish. Let's go home." Rather than take the chance of ruining future father and son fishing outings, we left.

Riding home in silence, I tried not to show my disappointment at our five-and-a-half-minute outing. I wondered what had become of all those great fishing genes I assumed were automatically transferred from one generation to the next.

My son skipped up the driveway swinging his pail of fish. When he reached the house he turned to me and said, "Hey, Dad. That was great fun. Let's do it again when I'm 10."

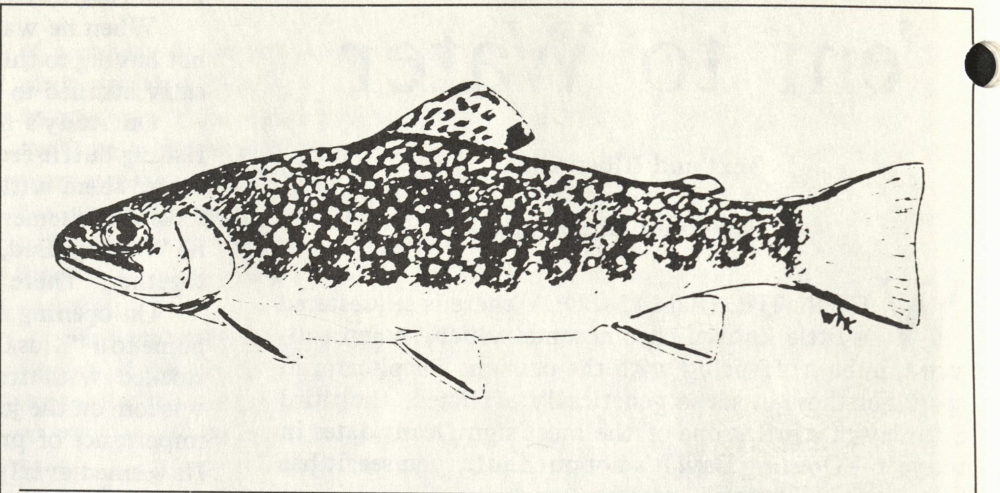
(The author is director of public relations for AAA in West Hartford. He is also a well-known outdoor writer and artist. His work regularly appears on the cover of this magazine.)



Map of the Month

The Sporting Constant

by
Alan Levere
Senior Environmental Analyst



Brook trout prefer clear, cold streams with gravel bottoms. They spawn in the fall (September to November) in gravel areas. Adults eat invertebrates and fishes. (From: Freshwater Fishes of Connecticut)

ONE OF THE THINGS that stays constant through the seasons is sportsmanship. And with this being April, then the start of fishing season must be close at hand. And since it is information, with a little bit of luck, that helps make the difference between a good or a bad day, we are glad to offer more info this year than we have offered before.

First is our *Guide to Lakes and Ponds of Connecticut*. As one of our best sellers, it features information on 73 lakes and ponds in the state, including such specifics as water surface area, access directions, parking capacity, a briefing on regulations, such as whether or not power boating is allowed (nice information if you are canoeing), notes on overabundance of weeds, shallow or unimproved launch conditions, and -- most importantly -- which types of fish inhabit the waters.

In addition, and one of the key reasons for the popularity of the book, is the full-page map (8 1/2" by 11") for each lake. These maps reveal the depths and the bottom contour of each water body. So there are no secrets as to the locations of those deep spots and shallow areas. It puts you on almost equal ground with the competition that might be using depth finders. *Guide to Lakes and Ponds of Connecticut* is spiral-bound for easy use; $4.65 is the price.

Next is the book *Freshwater Fishes of Connecticut*. Its 134 pages offer line drawings, generalized life histories, distribution maps and sampling sites, identification aids (color, fin alignment, length, and favored spawning areas), and favored foods for 82 species of fishes reported for the freshwaters of Connecticut.

Information from *Freshwater Fishes* will help you understand which species frequent which waters, and which fish are more common. When you want information on the fish of Connecticut's waters, where species have been successfully sampled, what they look like, and frequency of distribution, the maps and the "Discussion of Distribution" sections will help. *Freshwater Fishes* is $4.00. (A sister book, *Saltwater Fishes of Connecticut*, is also available in the same format and for the same price.)

We are also glad to have available two different sets of detailed lake maps. Each map is printed seperately on a 14" by 18" sheet. The water body is depicted in varying shades of blue, with the deep water areas being darker and the shallow depths lighter.

Stream inflows and outflows are mapped to show areas of mixing where fish might be feeding. A cross section will show the bottom profile across one width. The boat launches, picnic areas, and state-owned lands are depicted, and with the local roads named and identified, each lake should be a breeze to get to.

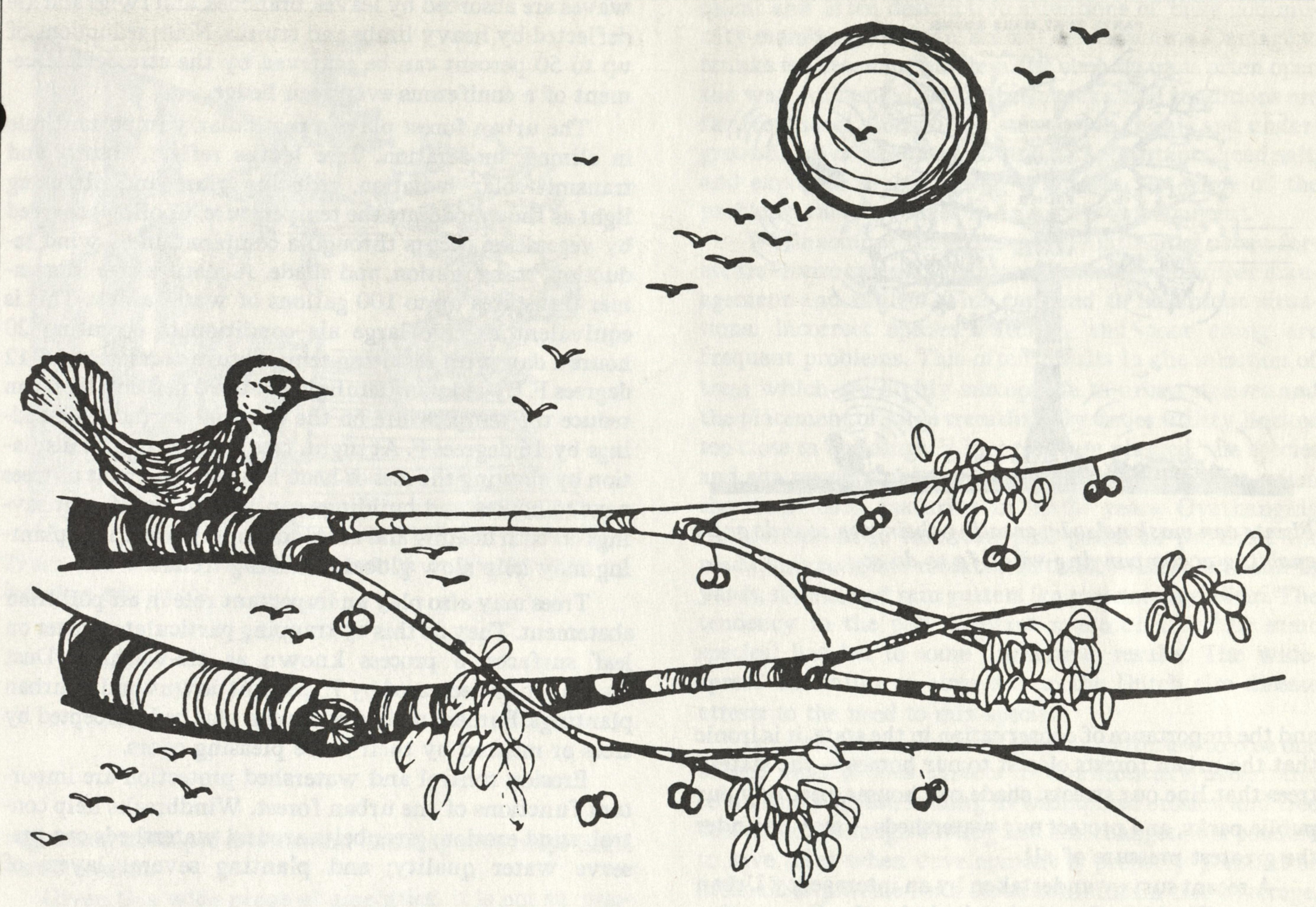
There are discussions of water quality, which includes dissolved oxygen content, alkalinity and acidity, and their effects on fish. Graphs of temperature and dissolved oxygen provide summer and winter profiles of these conditions. The summer profile is helpful to show the depth at which there is a depletion of oxygen below which fish cannot survive. Areas heavy with aquatic vegetation, and the lake bottom are described as well.

The two lake map sets are the east group, which includes: Bashan and Cedar Lakes, Mashapaug and Pachaug Ponds and Mansfield Hollow; and the west group: Beseck, Squantz, and Mudge Ponds, and Waramaug and Winchester Lakes. Each set is $5.00.

Finally, the yearly edition of the Bureau of Fisheries' *Angler's Guide* is available at no charge from your town clerk and some sporting goods stores that sell fishing licenses. It provides information on the public waters available for fishing, stocked ponds and streams, creel limits, and the latest changes in fishing regulations. You should be able to pick one up when you get your license, but if you missed it, let us know and we'll be glad to include one in your order.

So the sport of the month is fishing, but no one knows for sure if the fish will be biting -- and wondering about it is the season's biggest constant of all.

To order, please include $2.00 per order (not per item) for handling and 7 1/2 percent sales tax. Our address is: DEP-NRC, Map Sales, Room 555, 165 Capitol Avenue, Hartford, CT 06106. ■



Plants assist our aesthetic enjoyment by enhancing the environment in which our urban wildlife live. (*All drawings reprinted with permission from* Urban Forestry, *by Gene W. Grey and Frederick J. Deneke, John Wiley and Sons, 1986.*)

The Urban Forest

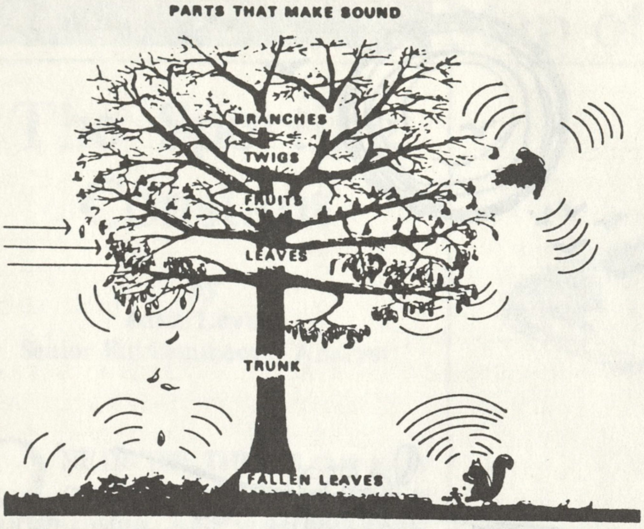
The critical role of trees in our crowded cities

by

Jeffrey Y. Campbell

Community Development/Natural Resources
Educator in Residence
Cooperative Extension Service

IT SOMETIMES COMES AS A SURPRISE to people who have lived in Connecticut all their lives, but there are few other places in this country where so many people live among so many trees. Connecticut is the fifth most densely populated state in the U.S. and 80 percent of its population lives in urban and suburban communities. It is also one of the most heavily forested states. Yet even with increasing public awareness of environmental issues



Plants can mask noise by creating their own sounds or by enabling accompanying wildlife to do so.

and the importance of conservation in the state, it is ironic that the urban forests closest to our homes -- the stately trees that line our streets, shade our houses, beautify our public parks, and protect our watersheds -- may be under the greatest pressure of all.

A recent survey undertaken by an interagency Urban Forestry Working Group that includes the Cooperative Extension Service, the Department of Natural Resources Management and Engineering at The University of Connecticut, and the DEP's Bureau of Forestry, shows that care and management of urban forests is a low priority for most communities in Connecticut. Budgets for tree management are rarely sufficient to allow for anything other than crisis management. Tree removals far exceed replacement. Very few municipal tree workers have appropriate training and public education programs are minimal. The result is an urban forest that is poorly managed, often aging, and unhealthy.

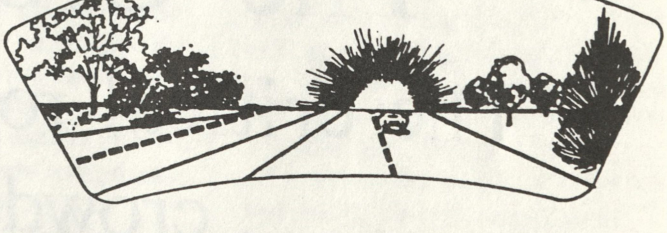
PROPERLY MANAGED, THE URBAN FOREST can produce a wide range of aesthetic, functional, and economic benefits to society and greatly enhance the quality of life.

Urban forests provide important architectural and engineering functions which include the aesthetic contribution of trees to soften corners and hard architectural lines. Artistically placed trees articulate entry points and lend color and distinction to public buildings. They help channel traffic and control potentially hazardous glare. Trees also contribute to the attenuation of noise as sound waves are absorbed by leaves, branches, and twigs and are deflected by heavy limbs and trunks. Noise reductions of up to 50 percent can be achieved by the strategic placement of a coniferous evergreen hedge.

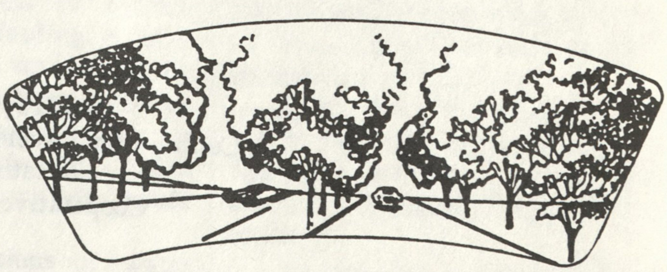
The urban forest plays a particularly important role in climate moderation. Tree leaves reflect, absorb, and transmit solar radiation, reducing glare and diffusing light as they moderate the temperature. Cooling provided by vegetation occurs through a combination of wind reduction, transpiration, and shade. A mature tree in summer transpires up to 100 gallons of water a day. This is equivalent to five large air conditioners operating 20 hours a day with resulting temperature decreases of 5-12 degrees F. By reducing sunlight up to 90 percent, trees can reduce the temperature on the external surface of buildings by 16 degrees F. At night, tree cover provides insulation by slowing the loss of heat. Proper placement of trees next to houses and buildings can lead to significant savings on both heating and air conditioning costs. Tree planting may help slow global warming trends.

Trees may also play an important role in air pollution abatement. They do this by trapping particulate matter on leaf surfaces, a process known as air-washing. Dust counts can be decreased by 75 percent downwind of urban plantings. Fumes and bad odors can also be intercepted by trees or masked by their more pleasing odors.

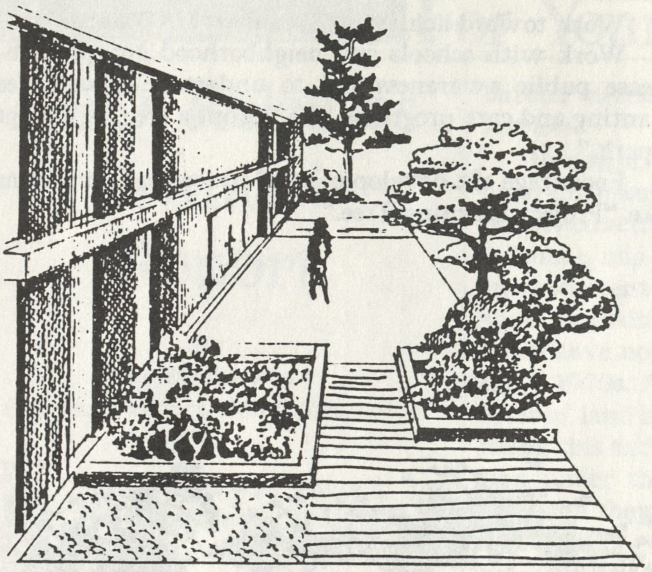
Erosion control and watershed protection are important functions of the urban forest. Windbreaks help control wind erosion; greenbelts around watersheds can preserve water quality; and planting several layers of



GLARE CONTROL FOR HIGHWAYS



The proper placement of trees along highways and median strips can alleviate early morning and late evening glare hazards.



Trees and shrubs can call attention to the location of building entrances.

vegetation on slopes and around building sites helps limit water erosion.

Given this wide range of amenities, it is not surprising that trees are known to increase property values. Homes surrounded by large trees or on well shaded avenues can fetch 15-20 percent higher prices. Landscape trees are an investment, since their benefits increase over time as they mature. The valuation of urban trees is a complex exercise, very different from forest timber assessment. It requires consideration of a number of factors including aesthetics, functional benefits, replacement costs, and site-specific features. A magnificent, well-placed urban tree may be worth several thousand dollars. The combined value of an urban forest represents a considerable economic asset that many communities are unaware of.

Finally the urban forest offers intangible social and psychological benefits: as a haven for wildlife; as a place for recreation, rest, and contemplation amidst business and haste; by pleasing the eye with colors, shapes and textures; and by providing a feeling of security and a link to nature. Studies have even shown that surgery patients can recuperate more rapidly if their hospital rooms have a view of trees.

UNFORTUNATELY FOR TREES, the benefits of living in close proximity to people are not always so great. Community forests must put up with the frequent and often destructive attentions of busy community members – human, animal, and machine. Damage to trunks is a frequent problem and such wounds often open the way for fungal and insect attacks. Site conditions are far from ideal. Constriction of space in the air and underground, soil compaction, air and soil pollutants, road salt, and exposure to desiccating wind are just some of the problems faced by trees in an urban environment.

While some of the stresses confronting the urban forest are environmental, many are caused by improper management and neglect. This can lead to hazardous situations. Incorrect species selection and poor siting are frequent problems. This often results in the selection of trees which are highly susceptible to urban stresses and the placement of large trees directly under utility lines or too close to buildings. When trees are planted, the species and site must be chosen for what it will look like when the trees reach maturity in 20-30 years. Overhanging limbs from large trees can pose potential problems for roads and roofs, and roots can lift sidewalks. Leaf litter in yards, streets, and rain gutters is a perennial problem. The tendency in the past to plant monocultures (the same species) has led to some disasterous results. The widespread mortality of elms due to the Dutch elm disease attests to the need to mix species.

Land clearance for development continues to pose one of the most serious threats to Connecticut's urban and community forest, leading to widespread erosion and tree destruction through cutting and site changes. It is possible to save trees when development is properly planned or ordinances provide for a certain minimum tree coverage.

The proper placement of trees can make scenic views even more spectacular because of the window effect they create.

MANAGEMENT OF THE URBAN FOREST is essential to prevent problems and maintain the many benefits trees provide. A growing number of communities around the country are constituting special tree boards or tree committees to co-ordinate their urban forestry planning. A good management plan begins with an inventory of the urban forest. For downtown areas this might involve a description of every street tree and every potential planting site that would specify the exact maintenance requirements needed. Computerized software packages will do this, and some even graphically display street trees. For parks and town forests more traditional forest inventory systems might be adequate. Based on the results of a comprehensive inventory, managment plans are developed to ensure proper pruning and coordinated care of urban trees, they ensure that trees remain healthy, are replaced as they are removed, or protected during development. Urban forest management includes managing suburban woodlots and parks to provide recreational services and wildlife habitat as well.

One program which helps communities plan and manage their urban forest is the Tree City USA network, which offers national recognition based upon certain required management steps.

To become a Tree City USA, a town must:

1. Appoint a legally constituted tree 'body.'
2. Promulgate a tree ordinance.
3. Develop a management plan.
4. Spend $1 per capita on its urban forest management budget.
5. Commemorate Arbor Day.

Ironically, Connecticut, with its heritage of well forested towns and open space will have only one recognized Tree City USA as of Arbor Day on April 28.

URBAN FOREST MANAGEMENT is a complex undertaking and to be successful, must involve the entire community in the process. Every town in Connecticut is required to have a tree warden who is responsible for the care of urban trees. A few cities like Hartford, New Haven, and Danbury even have a city forester. But until the community at large becomes aware of the importance of their trees these managers are often working with insufficient funds and little feedback. They are many things that individuals and community groups can do to get involved in urban forestry. Here are a few ideas:

Investigate the state of tree care in your community.

Look into the possibility of creating a tree board or urban forest management commission in your community.

Help raise funds for town urban forestry budgets.

Establish special funds for tree planting and replacement.

Help sponsor workshops for town employees and arborists.

Work toward achieving Tree City USA status.

Work with schools and neighborhood groups to increase public awareness and to undertake special tree planting and care programs like "adopt a tree" or "adopt a park."

Encourage the development of educational programs like "Project Learning Tree."

Trees and shrubs can create a feeling of solitude by their use in breaking up large spaces into smaller ones we are more comfortable with.

Commemorate Arbor Day, or better yet – arbor week.

Manage the trees in your own backyard.

The Cooperative Extension Service is working to develop educational materials, audio-visual presentations and a library of reference materials on urban and community forestry. In cooperation with the Bureau of Forestry and the Department of Natural Resources Management and Engineering at The University of Connecticut, a special pilot program in urban forest resource management is under way.

SINCE THE TIME OF THE FAMOUS CHARTER OAK, and the "council trees" of New England's Native American nations, Connecticut has had a proud heritage of town forests, parks, tree-lined streets, and commons. But, without proper management, this heritage is in danger of destruction and decay. Act now to help your community forests remain healthy and green.

For further information, please contact The University of Connecticut Cooperative Extension Service, 241-4940, or the DEP's Bureau of Forestry, 566-5348. ■

CEQ Releases Annual Report

by
Leslie Lewis
Citizens' Participation Coordinator

EACH YEAR the Council on Environmental Quality, Connecticut's environmental watchdog agency, issues a report on the ecological "state of the state." The 1988 *Connecticut Environment Review* covers the issues which the CEQ deemed to be of particular importance at this time.

The focal point of the report is a discussion of the DEP's tidal wetlands and coastal structures and dredging programs. In its review of these programs' successes and failures, the CEQ was led to a third issue -- the state's traditional policy of allowing rent-free use of lands owned by the state in trust for the public, and the potential for leasing those lands to private users.

Most coastal states, including Connecticut, have maintained ownership of all lands below the mean high water line. The CEQ has found, however, that Connecticut does not assert its ownership rights over these public trust lands as actively as other states. New Jersey, for example, collects more than four million dollars annually as rent for parties who maintain private structures such as docks, marinas, and bulkheads on public trust lands.

The report points out that the state receives revenues from leases on shellfish beds, but that all other private uses of public trust lands are free. This free use can result in a significant economic benefit to the user, but the state receives no compensation. As development pressure on coastal resources increases, improvements in DEP permitting and enforcement capabilities will have to be made. The CEQ suggests that the users of the public trust lands should shoulder some of the financial burden necessary to provide better services.

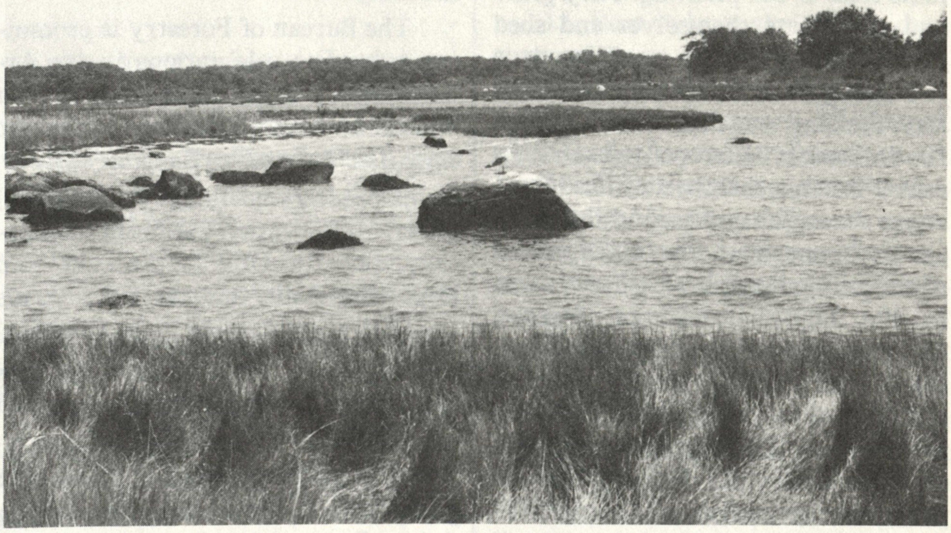
Evaluation of the tidal wetlands program discussed the fact that, while permitted activities in these areas were minimal, non-permitted activities and encroachment are occuring in many areas. In addition, maps of tidal wetlands have not been updated since the early 1970s. As much as 500 to 1000 acres of land may be missing from the maps; this excludes them state regulation under the Tidal Wetlands Act, although they do receive some protection under other programs. The potential for restoration of deteriorated wetlands has also been investigated. The CEQ recommends that existing restoration activity should be continued and enhanced wherever possible.

One of the biggest challenges to the DEP, according to the report, is the permitting of structures and dredging within tidal, coastal, and navigable waters. While the DEP assesses each permit on its individual merits, more needs to be done to determine the cumulative effect of continued development on submerged lands. The report also advocates a beefed up permitting and enforcement capability, including an increase in staff and the institution of permit application fees.

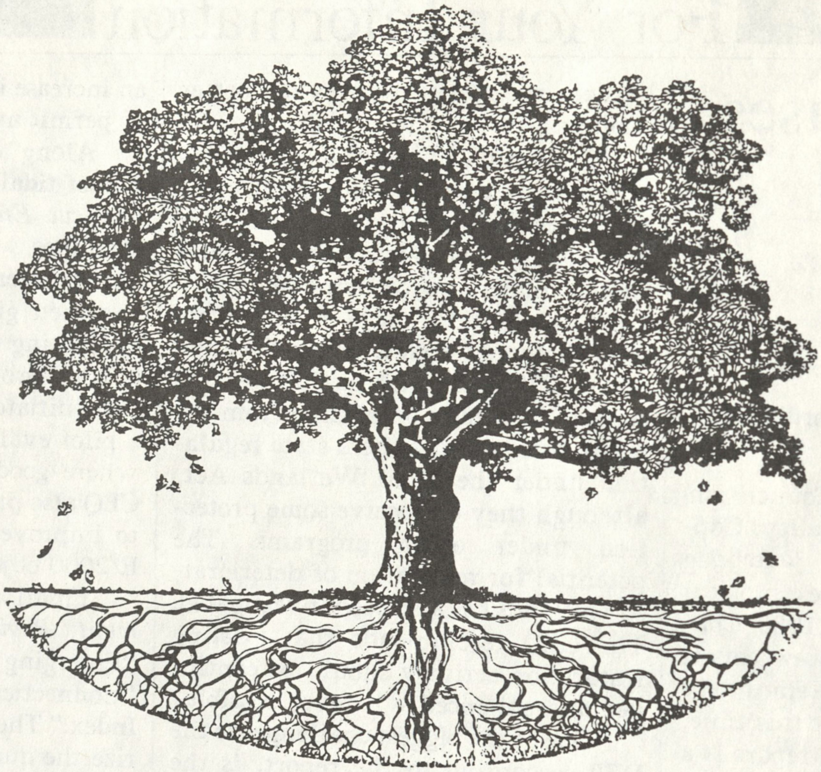
Along with the in-depth discussion of tidal wetlands issues, the *Connecticut Environment Review* report examines the state's Environment/2000 plan. The CEQ has has been given the responsibility of evaluating progress toward meeting E/2000 program goals. This year's report initiates the review process with a pilot evaluation of a few programs where good data was available. The CEQ also plans to work with the DEP to improve the measurability of all E/2000 objectives.

Finally, the *Connecticut Environment Review* includes sections on "Emerging Issues" and the "Connecticut Environmental Quality Index." These sections briefly summarize the quality of the state's air, water, land, and wildlife; they also identify trends in areas which will be of concern in the future.

The Council on Environmental Quality is pleased to provide copies of its annual report to interested citizens. You can contact the CEQ at the State Office Building, Room 239, Hartford, CT 06106 or call 566-3510. ■



The focal point of CEQ's Annual Report is the very delicate ecological balance of coastal areas. (*DEP file photo*)



Arbor Month in Connecticut

by

Celeste Prussia

Director, James L. Goodwin

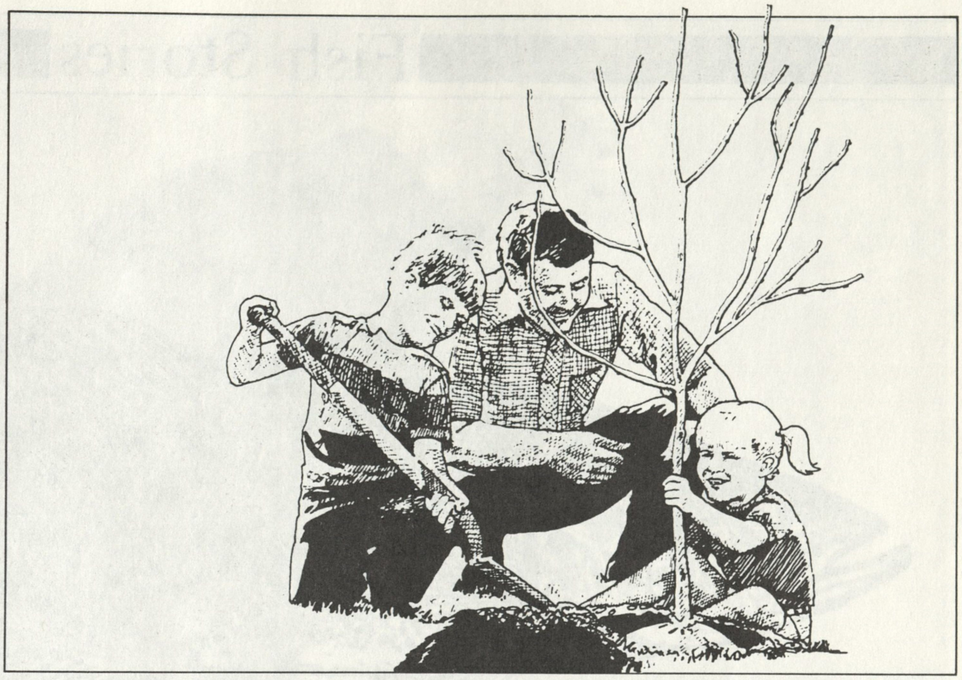
Conservation Center

"THE CULTIVATION of flowers and trees is the cultivation of the good, the beautiful, and the ennobling in man. How much more enduring are the animate trees of our planting. They grow and perpetuate themselves and shed yearly blessings on our race." So wrote J. Sterling Morton, founder of Arbor Day. Sterling was man with a vision. His dedication, his love of trees, and his dream to honor their beauty has spread across the nation and around the globe.

In Connecticut, the management of the public forest has been entrusted to the DEP's Bureau of Foresty. Through the management and planting of trees on public lands, and a program of cooperative forest management (CFM) with private forest landowners, the Forestry Bureau promotes the health of Connecticut forests as they continue to mature. Watershed protection and wildlife habitat are two essentials of life provided by our woodlands, which also provide recreational sites and fuel a multi-million-dollar forest products industry.

The Bureau of Forestry is promoting Arbor Day celebrations during Arbor Month – April 15 to May 15 – in schools and municipalities across the state. The *Arbor Day Teacher's Guide*, developed by the James L. Goodwin Forest Conservation Center in cooperation with the DEP Information and Education Unit, targets fifth grade classes. Classroom and outdoor activities from the Project Learning Tree (PLT) curriculum guides are provided to assist teachers to inspire an awareness and understanding of trees. The guide includes information to plan an Arbor Day celebration, plus poems, songs, and the history of this holiday that is purely American in origin. The Forestry Bureau is providing tree seedlings, upon request, to fifth grade classes that agree to sponsor an Arbor Day ceremony in their school. The Goodwin Center designed *The Arbor Day Guide for Connecticut Municipalities* to provide helpful information and tips to assist town tree wardens and managers to plan and implement an Arbor Day celebration of stewardship. This guide parallels the *Teacher's Guide*, includes steps for planting trees and seedlings, and is tailored to meet the needs of Connecticut towns and cities. Tree seedlings are available to municipalities that request them and agree to make the commitment to hold a celebration and tree planting ceremony. Community leaders are urged to encourage participation in Arbor Month activities.

A Tree for A Special Occasion



PLANTING A TREE is a fine way to commemorate birthdays, anniversaries, reunions, graduations, promotions, retirements, and other special occasions. Trees can also be planted as memorials for loved ones. A tree provides a living monument and can improve your environment in many ways.

A tree can add beauty to your home. Remember, you step out of your house into whatever environment you have created. Beauty is contagious; if you plant trees around your home, your neighbors may do the same. And, trees can help increase the value of your property, sometimes by 10 to 20 percent.

A tree can be a natural air conditioner. The evaporation from a single large tree can produce the cooling effect of 10 room-size air conditioners operating 20 hours a day. Healthy and properly pruned trees are wonderful for shading your roof and keeping your house cool. You can even improve the efficiency of your mechanical air conditioner by shading it with a tree and thus keeping it out of direct sunlight.

A tree can bring music into your life. Certain trees attract birds and animals. Not only will you enjoy new wildlife friends, but they can help control insects.

A tree serves as a buffer against unpleasant noises. If well placed, a tree can reduce noise by as much as 40 percent.

In a forest, a person is usually surrounded by pleasant smells. Certain trees can help freshen the atmosphere with the trees' own natural, pleasant fragrances. For example, one cherry tree can perfume the air with 200,000 flowers, and their beauty can be breathtaking.

Tree leaves can also break the onslaught of raindrops pelting the soil surface and give the soil a chance to soak up as much water as possible. Fallen tree leaves cover the ground and help keep the soil from drying out. They also reduce the temperature of the soil. And, decaying leaves enrich the soil and support new tree growth.

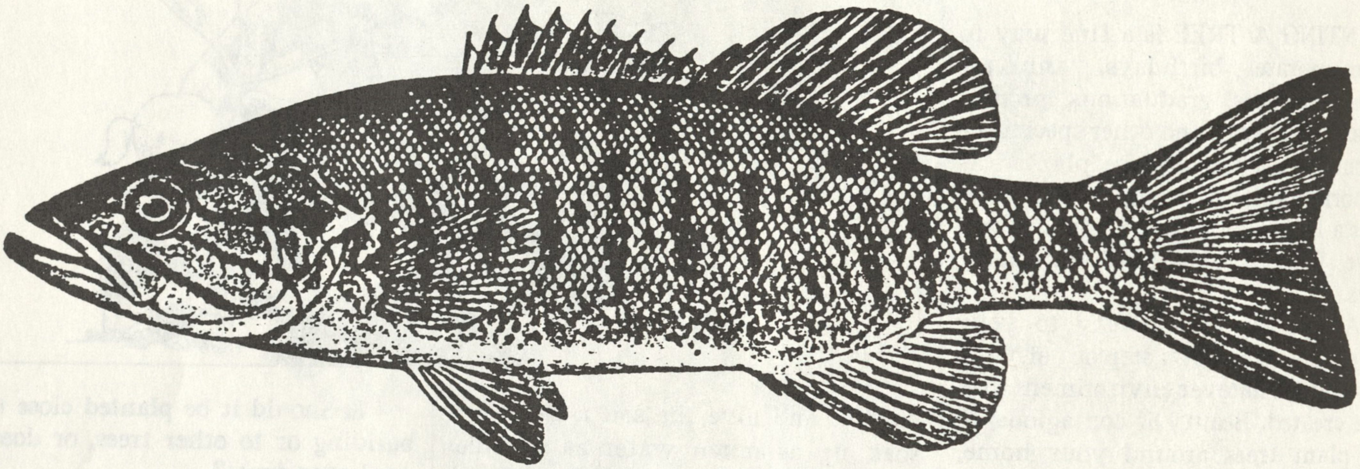
A tree can even help clean the air. Because of smog, some urban areas now receive up to 16 percent less sunlight than they did in 1920. Trees are so good at trapping dust that some cities have to "wash" their freeway tree plantings every so often. In one large American city, the dust level in the air on the sheltered side of planted areas was 75 percent lower than the dust level on the windward side.

Twenty Questions to Ask When Buying a Tree

1. Does the tree need full sun, partial shade, or complete shade?
2. Will the tree withstand cold and hot weather?
3. Is the tree especially susceptible to disease or to damage by insects?
4. Does it need acid soil or sweet soil?
5. How can I make acid soil sweet and vice versa?
6. Does it need a dry area or a wet area?
7. How big will the tree grow and how fast?
8. Should it be planted close to a building or to other trees, or does it need open space?
9. Can I plant flowers under the tree?
10. Does it need special care the first few years?
11. Will it produce nuts, fruit, cones, or colorful leaves or flowers that I can use?
12. Will it give good shade in summer and winter?
13. Is the tree more smog resistant than other trees? Be sure to find out if you are planting along a major highway.
14. How far should I plant it from a sewer or drain line, sidewalk, or diveway?
15. Does it have shallow or deep roots and how well will it withstand wind?
16. Can it serve as a windbreak, noise barrier, or visual screen?
17. Will it encourage wildlife and birds to live in the area?
18. Will it drop many seeds in the area, causing a crop of sprouts come spring?
19. Is it noted for shedding leaves year round?
20. Will it fit in well with the area's landscaping? ■

(This article is reprinted from a publication of the United States Department of Agriculture, Forest Service.)

Fish Stories



Meet the Smallmouth Bass

The original range of the smallmouth bass (*Micropterus dolomieui*) was restricted to the north-central part of the United States and southern Canada. It has been widely introduced throughout the northeastern states and is found in many Connecticut waters. The smallmouth inhabits streams and rivers with slow to moderate current, and lakes and ponds with rocky shorelines and abundant cover. This species tends to prefer clear, somewhat cooler water than does the largemouth bass. Smallmouth bass spawn in late May and June. A saucer-shaped nest is constructed in two to 20 feet of water and is guarded by the male bass. The male also guards the young bass for a short time after they hatch. Young bass feed primarily on zooplankton (microscopic animals) and insects until they are approxmiatley two inches long. As the fish grow, their diet gradually shifts to fishes, frogs, and crayfish. Connecticut smallmouths generally mature at three to five years of age, and may live longer than 10 years. In Connecticut, smallmouths grow somewhat slower than largemouth bass, taking four to five years to reach 12 inches in length. However, growth is believed to be variable; faster- and slower-growing populations are likely to exist.

Smallmouth bass prefer clear water and rocky shores in lakes and ponds, and slow to moderately swift rivers having a bottom of sand, gravel, and rock. Rocky points and dropoffs in lakes, edges of the current, and below dams or rapids in rivers are favored by many anglers. Smallmouths can be taken on a wide variety of tackle. Artificial lures used with spinning or bait-casting gear, however, are the most popular means of fishing for this species. Surface lures, deep or moderately deep-running plugs, plastic worms, and spinner baits are some of the most common lure types used. Popper bugs and flies with a fly rod and live bait fishing are also effective methods for catching smallmouth bass.

The all-tackle world record smallmouth bass is 11 pounds, 15 ounces, and was taken in Kentucky. The Connecticut record is a seven-pound, 12-ounce fish taken in Shenipsit Lake, Tolland, in 1980. Some outstanding smallmouth bass waters in Connecticut include the Connecticut River north of Hartford; Gardner Lake in Salem; Highland Lake in Winchester; Lake Pocotopaug in East Hampton; Coventry Lake in Coventry; Wyassup Lake in North Stonington; and portions of the Housatonic River. ■

(*This article is one of a series prepared by the DEP's Bureau of Fisheries. Look for more articles on the fish of our state in upcoming issues of* Connecticut Environment.)

In 1989, a total of 88 bald eagles and one golden eagle were counted in Connecticut. This breaks the previous record. (*Photo: L.L. Rue*)

Midwinter Report on Bald Eagles

"The results of Connecticut's efforts in the 11th annual National Wildlife Federation Midwinter Bald Eagle Survey indicate that our region's bald eagle population is continuing to make a strong comeback," announced Rita Duclos, endangered species biologist for the DEP's Wildlife Bureau. Once again, Connecticut has broken its past record with a statewide count of 88 bald eagles and one golden eagle. This count represents a 69 percent increase over 1988's count of 52.

Warm weather conditions provided an unusual challenge to survey participants; due to the absence of ice on all major rivers and other bodies of water, the eagles were spread out statewide. In a more typical January, eagles concentrate in areas with open water for fishing and are therefore easier to count. However, during the most recent survey on January 13-14, the 50 survey participants had to thoroughly check many bodies of water which, in a more typical year, would only merit a quick check.

A summary for the past 11 years of the survey is noted in the table.

"The consistent increase in Connecticut's wintering bald eagle population reflects a recovery which is exhibited by this species regionwide," added Duclos. "While the overall picture is certainly positive, biologists will continue to be vigilant and cautious in the management and protection of the bald eagle. The road to recovery is finally within range of its goal, but it has been a long, difficult process and it is certainly not over yet." ■

Midwinter Bald Eagle Survey Results
1979-1989

	Immature	Adult	Unknown	Total
1979	–	–	–	20
1980	–	–	–	11
1981	–	–	–	26
1982	18	13	0	31
1983	18	17	0	35
1984	17	22	0	39
1985	14	24	0	38
1986	22	18	0	40
1987	15	18	0	33
1988	23	28	1	52
1989	30	58	0	88

The adult/immature breakdown is not available for 1979-81.

The Bulletin Board

Archaeological Meeting

The Archaelogical Society of Connecticut will meet from 9 a.m. to 6 p.m. Saturday, April 22 at the American Indian Archaelolgical Institute in Washington, Connecticut. The public is welcome. The fee for luncheon buffet is $5 per person.

The day begins with coffee and a business meeting. At 10:30 two papers will be presented, followed by a tour and monologue on "Native Americans and Archaeolgists," a new site installation and art work. After lunch there will be a question and answer session with Nick Bellantoni, the state archaeologist, and workshop on proposed legislation to protect Indian burial sites. At 4:30 p.m. there will be a reception.

For further information, phone the office of the state archaeologist (203) 486-4460. ■

Lifeguard Exams Announced

The DEP's Office of State Parks and Recreation will hold qualifying exams for lifeguard positions at state beaches.

The exams will be held at Kaiser Gym building, Central Connecticut State University, in New Britain. Exams for new guards will be held on four Saturdays, March 25, April 8, April 22, and May 6, from 10:00 a.m. to 1:00 p.m. Applicants must be 17 years old by the time of employment and must pass a practical examination in lifesaving techniques. (There will also be exams for returning guards on the same dates from 1:00 p.m. to 4:00 p.m.)

There are openings at the following state parks:

Black Rock/ Thomaston
Burr Pond/ Torrington
Chatfield Hollow /Killingworth
Day Pond /Colchester
Gay City /Hebron
Green Falls /Voluntown
Hammonasset Beach/Madison
Hopeville Pond /Griswold
Indian Well /Shelton
Kettletown /Southbury
Lake Waramaug /New Preston
Mt. Tom /Bantam
Mashamoquet Brook/Pomfret
Quaddick /Thompson
Pataconk /Chester
Rocky Neck /Niantic
Sherwood Island /Westport
Squantz Pond /New Fairfield
Stratton Brook /Simsbury
Wadsworth Falls /Rockfall
Wharton Brook /Wallingford

For further information contact: Costas T. Constantine, Lifeguard Examiner, DEP Office of State Parks and Recreation, 165 Capitol Avenue, Room 265, Hartford, CT 06106. Telephone (203) 566-2305 ■

Spring Hikes and Walks

The following spring events are sponsored by the Connecticut Forest and Park Association:

April 9, Sunday 9:00 a.m. Hike on the Tunxis Trail. 6-7 miles from Satan's Kingdom to Rome Spare Outlook. This is a section of the Blue-Blazed Trail System associated with two of the state's trail pioneers, Rome Spare and George Libby. Last year we sighted wild turkeys. Bring lunch and liquid. Rain cancels. Meet at the boat launch just north and west of the Route 44 highway bridge over the Farmington River. Contact Clyde Brooks 633-7406.

April 15, Saturday 10:00 a.m. Hike on the Nipmuck Trail. Five miles along the Fenton River, beginning at Mansfield Hollow State Park, one mile east of Mansfield Center off Route 89. We will see early spring wildflowers. Bring lunch and liquid. Contact Sam Dodd 423-6170.

April 22, Saturday 10:00 a.m. Hike at McLean Game Refuge. 5-8 miles. This will be a moderately paced walk through the preserve to enjoy the emergence of spring. The leader plans to circle ponds to note wildlife, wildflowers, and birds, as well as budding trees and shrubs. Good views. Heavy rain cancels. Meet at the entrance to McLean Game Refuge off Route 10, 5 miles north of Simsbury. Contact Don Garber 756-3387.

May 20, Saturday 10:00 a.m. Tree Walk. Less than two miles from the CFPA headquarters is an unusual but little known resource, the Wadsworth Arboretum. This small park, which was planted around the turn of the century, contains large specimens of about 40 species of trees, both native and exotic. Participants should meet at the CFPA headquarters in Middlefield at 10:00 a.m. Bring a trail lunch and liquid. We will carpool to the Arboretum and spend two to three hours ambling through the trees over a flat lawn. Trees will be identified and discussed briefly. Those who have a pocket tree guide may wish to bring it. After all, where else can one see eight species of mature oaks side by side with a Kentucky coffee tree, a black tupelo, a katsura, and a yellowwood? Leader: Ed Richardson, tree enthusiast and participant in the Connecticut Big Trees program. Contact CFPA 346-2372.

For more information about coming events, contact Linda Rapp, Connecticut Forest and Park Association, 16 Meriden Rd., Route 66, Middlefield, CT 06457. Phone: 346-2372. ■

Environment/ 2000 Conference

The DEP will sponsor its third annual Environment/2000 Conference on April 21, 1989. This year's conference will deal with critical global, regional, and local issues facing our state. The Conference will link this concept to Long Island Sound and show why we, as citizens, should be concerned about global environmental issues.

The Sound is an irreplaceable asset and part of the ecological web worldwide. This Conference will focus on the Sound's state of health, and the costs associated with its cleanup, its potential for shore-based and water-based recreational use, its fisheries and shellfishery resources, and its regulation by various governmental agencies. Congressman Bruce Morrison will be the keynote speaker.

The Environment/2000 Conference will take place on April 21, at the Ramada Inn, in Meriden. Registration is $30, which covers attendance, handouts, and luncheon. For further information, please contact Tina Delaney at 566-8108. ■

Orienteering Events

The following orienteering events have courses for beginner to advanced levels. Instruction and rental compasses are available. For information, call any meet director. The events are sponsored by the New England Orienteering club or the Western Connecticut Orienteering Club.

Saturday, April 1. Paugussett State Forest, Newtown: Registration: 11 a.m. to 1 p.m. Directions: From I-84, take exit 10 to Rte 6 west. After 0.6 mile, turn right at "The Boulevard". Go 1.3 miles to Hanover Road. Go north for 2 miles to parking area. Tony Muffatte: (203) 798-1231.

Sunday Aril 2. Metro. Dist. Comm. Reservoir #5, West Hartford: Registration: 10 a.m.to 1 p.m. Directions: From I-84, take exit 39 to Rte 4. Go east on Rte 4 to Metropolitan District Commission gate. Turn into reservoir property and follow red and white '0' meet signs to parking lot. Allmuth Perzel 872-4695.

Sunday May 7. Pond Mountain, Kent. Registration: 11 a.m. to 1 p.m. Directions: From Rte 7, west on Rte 341 for 0.2 mile. Cross bridge, then right on Skiff Road for 3.5 miles. Peter Goodwin (203) 927-4021.

Sunday May 21. Huntington State Park, Redding. Score o' Course: **a)** 75 minute time limit, Registration: 11:00 - 11:30 a.m.; **b)** 45 minute time limit, 11:30-12 noon. Directions: From I-84, take exit 10 to Rte 6 and go for 1 mile. Turn left to Rte 25. After 0.4 mile, turn right to Rte 302. After 6 miles, go south to Rte 58. After 1.2 miles, turn left to Sunset Hill Rd. Follow 2.4 miles. Sam Burd, Jr. (203) 454-0443. ■

State Senator Michael Meotti of Glastonbury was honored for his outstanding environmental contributions. (Photo: Margot Callahan)

Senator Meotti Honored

On February 1, 1989, the Connecticut Environmental Caucus and The Land Conservation Coalition for Connecticut presented its Environmental Achievement Award to State Senator Michael P. Meotti (D-Glastonbury) in recognition of his outstanding contributions to environmental protection during a reception at the Legislative Office Building.

"As Senate Chairman of the Environment Committee, Senator Meotti consistently demonstrated his dedication to natural resource preservation. He helped secure funding for land conservation under the State Recreation and Natural Heritage Trust Program. His municipal land bank initiative focused legislative attention on Connecticut's vanishing open space. Under his leadership, Connecticut's inland wetlands protection laws became the strongest in the country," is the wording of the award signed by Jim O'Rourke, Environmental Caucus Chair, and Leslie N. Corey, Land Conservation Coalition Chair.

Meotti, a resident of Glastonbury, represents the 4th Senate District in the General Assembly, which encompasses parts of Glastonbury, Manchester, Bolton, Columbia, and Hebron. The award was a surprise to the state senator, who had no prior knowledge of the plan by the Caucus and Coalition to reward his successes in protecting the environment of the state.

"Senator Meotti has been a tremendous friend of environmental interests in this state, and we look forward to continuing to work with him to protect and improve the quality of life for Connecticut citizens," said Les Corey, Chairman of The Land Conservation Coalition For Connecticut. ■

Dinosaur State Park

The following events are scheduled at Dinosaur State Park in Rocky Hill:

Lecture Title: "What Makes Triceratops Run?" **Date and Time:** Tuesday, April 11, 1989, 7:30 p.m. **Lecturer:** Dr. Walter Coombs, Jr., associate professor of biology, Western New England College. **Description:** How fast could the dinosaurs run? Did any dinosaurs hop like a kangaroo? Could any dinosaur run as fast as a thoroughbred racehorse or a cheetah?

Dr. Coombs will attempt to answer these questions and more. This requires a thorough knowledge of modern animal anatomy and behavior. Then clues from the skeletons of dinosaurs, the shapes of their braincases, and the footprints they left can be pieced together to draw conclusions about their running ability. A question and answer period and refreshments will follow. **Donation:** $2.50. Tickets available at the door, or call Dinosaur State Park at 529-8423.

Event: "The Need to Preserve Biological Diversity" by Leslie Mehrhoff, biologist, DEP. **Date and Time:** Saturday, April 15, 1989, 1:00-2:00 pm. **Description:** What does biological diversity mean? Why is it important to preserve biological diversity and how can you as an individual help? Explore different types of diversity in an inspiring slide show. The program ties today's important environmental issues together with the need to preserve Connecticut's remaining biological diversity. **Admission:** Free with Exhibit Center admission: $1.00 for adults $.50 for children 6-17 years, five and under free.

For further information, write or phone: Dinosaur State Park, West Street, Rocky Hill, CT 06067; (203) 529-8423.

DEP Summer Jobs

Make this summer a really special one. Get outside, learn about what's going on in the state, meet new people, do something to make Connecticut safer, cleaner, and more beautiful, and get paid for doing it. The Connecticut DEP has a number of openings for summer jobs, and if you think working to improve the environment is something you'd be interested in, let us know. Now is the time to firm up your summer plans. Make this one your environmental summer.

To Apply, complete:

NAME ____________________
ADDRESS ____________________
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Interest: (circle)

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- **Camp Mgr.**
- **Fish and Wildlife Asst.**

Mail To:

CT DEP
Rm. 245
165 Capitol Ave.
Hartford, CT 06106

or call:

E. Dist. 295-9523
W. Dist. 485-0226

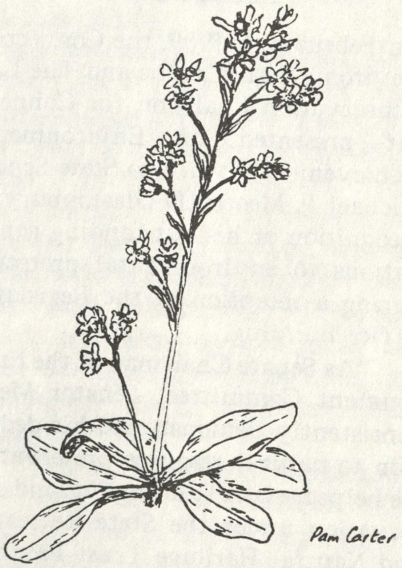
Trailside Botanizer

Early Saxifrage

by
Gale W. Carter
Illustration by
Pam Carter

EARLY SAXIFRAGE (*Saxifragus virginiensis*) is one of the relatively few spring wildflowers in the Northeast that blossoms as early as March. It has been preparing for this moment for some time by forming its rosette of basal leaves the previous autumn.

By the latter part of March, fine hairy buds at the center of the rosette begin to unfold. The first of its white star-like flowers form in small clusters on a six- to eight-inch stem. Each blossom has five sepals, five petals, 10 golden stamens, and two pistils that are held together loosely. Flowering may continue until the middle of June. By this time the stem may have grown to a height of 18 inches.



The stem is covered with many glandular hairs. This is an adaptation to keep crawling insects, like ants, from reaching the nectar.

Pollination is believed to be carried out by small bees and some butterflies that are attracted to the fragrant flower.

The fruit that follows the flower consists of two nearly separate, reddish-brown follicles that are loosely connected. They are curved beak-like, away from each other.

Early saxifrage is found in a variety of rocky habitats, such as ledges, rocky fields, and woodlands.

Its generic name is derived from two Latin words: *saxum* meaning "stone" and *fragere* meaning "to break." This may be based on the assumption that this plant is often found growing in the crevices of rocks. As the roots grow, the rocks tend to break down. However, some botanists doubt this theory.

Early herb doctors believed that the plant was useful for breaking up stones in the gall bladder and kidney. They observed the presence of pebble-like bulblets on a species of European saxifrage and they interpreted this as being a sign, or "signature," that the plant was to be used for this purpose. This is another possibility for the origin of the genus name.

If the proper conditions of sufficient shade, moisture, and drainage are present, early saxifrage can be introduced into a rock garden.

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The Night Sky

Berenice's Hair

by

Francine Jackson

YOU MAY BE SURPRISED, on looking straight up in the northern sky these days, to see the Big Dipper almost directly over your head. As spring progresses, so does the counterclockwise motion of this star pattern until, by late spring, it appears at the 12 o'clock position in the northern sky. As always, though, the two stars at the end of the "pan" of the dipper point to Polaris, the North Star; the orientation of the Big Dipper changes throughout the year, but its relative position to Polaris remains the same.

While you've got the Big Dipper in your sight, use it to find one of the harbingers of the season. Simply turn 180 degrees to the south, and bring your eyes downward. There you should find a constellation that really looks like what it is -- Leo the Lion. His head and mane are present as a backward question mark (the "sickle"), and his back legs are formed by a right triangle to the left. Join the two shapes with a line to form his back, and you'll agree there's a pretty good-looking lion up there.

Originally, Leo's tail ended in a beautiful "tuft" of stars, but that was changed by a quick-witted court astronomer of the third century, B.C. At that time King Ptolemy Soter was fighting the Assyrians. His Queen Berenice vowed to sacrifice her beautiful amber hair to Venus, the goddess of love, if her husband would return.

Upon Ptolemy's homecoming, Berenice quickly ran to the temple, cut off her hair, and laid it on the altar. Ptolemy was visibly upset to see his wife's beautiful hair cut in a bob, but she proceeded to explain her promise and brought him to the temple. However, as luck would go, her tresses were gone. Berenice was furious -- she ran to find the priest and threatened torture unless he would recover her hair. Fortunately for the priest, the court astronomer happened to witness this disaster. He quickly directed Ptolemy and Berenice outside, and showed them a mass of very faint stairs. He explained that Jupiter had come down from heaven to take the beautiful locks up to Heaven, where they could be admired by all the nations of the world as a symbol of Ptolemy's and Berenice's undying love. They bought the story, the priest lived, and a new constellation, Coma Berenice (Berenice's Hair), was born. From the city, you may need to use your imagination to see a mass of hair but, if you recall that this was once the tip of Leo's tail, and use averted vision (turn your eyes just slightly off the actual position), at least some of Berenice's sacrifice should become evident. ■

Letters to the Editor

On a recent evening, I turned the cover page of *Connecticut Environment*, read the Editor's Note reporting the event honoring school kids for efforts to promote recycling, and I felt better. Next, I read the pleasantly informative article on where bees go for the winter; noted the activities of the Long Island Sound Task Force; was impressed very favorably by the detailed report on Connecticut's recycling program; and skimmed the article on the wild turkey and the many other interesting items. Another fine issue.

Doris Cook
Hartford

You expressed a deep concern for the problems of our global environment, and described some of the major threats to our life on Earth. While I am pleased to know that many of you at the DEP work very diligently and care very much about our environment, I am perplexed about the manner Connecticut is handling this responsibility.

I wish that the DEP and the EPA would establish a zero pollution standard. *No* nuclear power or waste, *no* tire burning incinerators, *no* medical waste incinerators, *no* garbage or woodburning incinerators, *no* ash landfills, *no* non-recycable plastic. Exclude all the toxins. Most people are familiar with the expression, "There's no such thing as a little bit pregnant." I contend that there is no such thing as a little bit contaminated.

Carolyn Werge
N. Grosvenordale

Do you happen to have a book on the geology and geography of Connecticut?

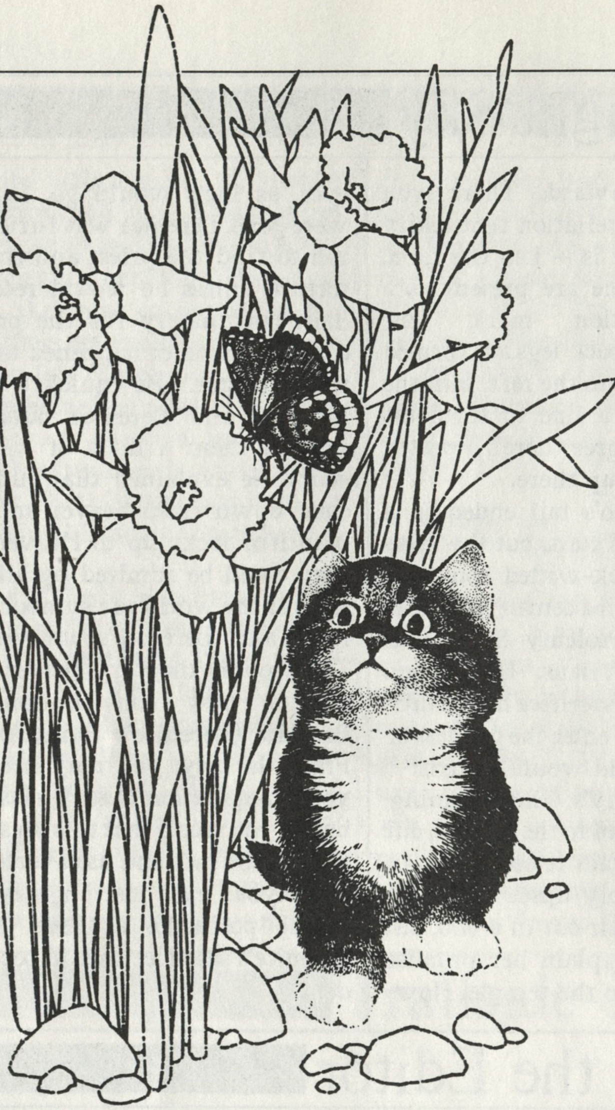
Nicholas Zurzola
Stamford

You bet we do. It's The Face of Connecticut *by Michael Bell. Cost: $12.95, plus $2.00 handling, plus 7 1/2 percent sales tax, and available from DEP Natural Resources Center, Map Sales, Room 555, 165 Capitol Ave., Hartford 06106. You'll love it. Ed.*

Endnote

"There they stand, these miraculous trees, shimmering now in new leaf, already busier than man's huffing, puffing factories. We pay them passing tribute for their cool shade and green beauty, then resume our boasting about our own power and achievment, forgetting the mysterious, incalculable power of leafy tree."

Hal Borland



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